

Georgia Institute of Technology
School of City and Regional Planning

Church-Based Transportation:
A New Shared Mobility Service That Converts Church Parking Lots into
Transportation Hubs for Metro Atlanta Communities.

Author: Curtis M. Tyger
Advisor: Dr. Nisha Botchwey
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Introduction

The Atlanta metro region leads national polls and statistics that reveal the inadequacy of available transportation services. For example, Atlanta has the 2nd lowest rate of economic mobility, 4th highest rate of suburbanization of poverty, and is the 4th most traffic-congested city in the United States. Each ranked criterion can be credited to the region's public transportation system and its inability to keep pace with the metro area's sprawling land use pattern. Economic mobility or "an individual, family, or group's ability to improve their economic status" is often measured by access to efficient and reliable transportation services (Forward Through Ferguson, 2015). Suburbanization of poverty, or the increase in poverty rates in suburbia, has close ties to how metropolitan governments have neglected to ensure adequate regional transit services. As regional governments allocate millions of public dollars to well-needed transportation projects, their projected completion dates are often in the distant future, thus forcing residents to wait years for a solution. However, this paper will analyze how a ubiquitous community asset can offer the space to implement immediate mobility services to underserved communities in the Atlanta metro area.

Churches are assets that hold much potential given their reputable stake within communities. They are commonplace institutions that can be seen in both residential and commercial districts. Even though their operational hours vary around the region, it is typically understood that their parking lots sit vacant during much of the week, especially on weekdays. By bridging the gap between vacant space and valued time, under-utilized church parking lots can be the optimal sites to host shuttle services that reduce travel time for sprawling and underserved communities.

Church-based shuttle services are a form of shared mobility. The Atlanta region's relationship with shared mobility services has been one necessary experimentation that has fought to alleviate traffic congestion and improve access to transportation services. Shared mobility services have been tested by both the public and private sectors, which has sparked many questions on if this concept is profit-based or service-based. As a result, this paper will seek to achieve two goals:

1. Assess recent forms of shared mobility services in the Atlanta metro area and how they have impacted regional mobility.
2. Propose a new shared mobility service that partners churches with the Metropolitan Atlanta Rapid Transit Authority (MARTA) to better serve the mobility needs of underserved communities.

In the first section of this paper, I will provide background on what shared mobility is and the various forms of shared-use services that have been implemented in the Atlanta region. This will be followed by an examination of the inequities of shared mobility services and how they are failing the region's most vulnerable communities. The third section will introduce church-based transportation and why churches are ideal sites for a transportation hub. Next, I will delve into case studies on two distinct communities and examine how church-based transportation can meet the needs of those residents. Lastly, the remaining sections will consist of possible limitations to church-based transportation as well as concluding thoughts on why this bold proposal is worthy of regional investment.

Background

What is Shared Mobility?

Shared mobility has been around in the United States for centuries and has continued to impact the development of cities and more recently, metropolitan regions. From horse-drawn buses in the 19th century to electric scooters in the 21st century, shared mobility has always had profound importance on how city dwellers got around. Yet, Atlanta is a special case largely due to its history of auto-dependency and a politically-crippled transit system. However, I will not delve into the history behind Atlanta's public transit system or poor land use planning. Instead, my focus will be on the impact shared mobility is currently having on the Atlanta region. But in order to properly assess shared mobility in the region, it is imperative to understand what exactly shared mobility is.

According to the Shared Use Mobility Center in Chicago, Illinois, shared mobility is defined as:

Transportation services and resources that are shared among users, either concurrently or one after another. This includes public transit; taxis and limos; bikesharing; carsharing; ridesharing (i.e., non-commercial services like carpooling and vanpooling); ride sourcing or ride-hailing; ride-splitting; scooter sharing; shuttle services and "microtransit"; jitneys and dollar vans; and more. (What is Shared Mobility, 2019)

Shared mobility has continued to garner investment in the Atlanta area as the region's population boom puts pressure on the metro area's public transit system. As a result, shared mobility is no longer strictly the focus of public sector agencies, but instead it is becoming more privatized as companies recognize the profitability of transportation in dense urban settings. Since the creation of Uber and Lyft in 2012 that allows people to book a ride from an application

on their smartphones, more private sector companies are looking to offer alternative options to public transit. Since 2012, private sector mobility services have continued to expand and penetrate city streets in ways that have forced local governments to act abruptly towards managing road and pedestrian safety. Yet, despite the push from private companies on mobility services, public sector transportation services are experiencing growth as well. In the next section, I will explore how public-sector investment and public-private partnerships are expanding shared mobility services in the Atlanta metro area.

Current Shared Mobility Services

Atlanta-region Transit Link (ATL)

The Atlanta metro region is currently in the midst of a shared mobility revolution as city, county, and state leaders have come together to further unify the metropolitan transit system. In March 2018, the Georgia Assembly passed House Bill 930, a transit expansion legislation that would enhance the funding and organizational dynamics of public transportation around the Atlanta region. Within the transit expansion plan, it would “allow 13 metro Atlanta counties to impose sales taxes of up to 1 percent for mass transit” (Wickert, 2018). As a result, the Atlanta-region Transit Link Authority was formed to govern the funding mechanisms as well as coordinate existing and future transit services in the 13-county region, including services currently provided by Metropolitan Atlanta Regional Transit Authority (MARTA), Xpress, CobbLinc, Gwinnett County Transit and the Cherokee Area Transit Service. Recently in 2019, the CEO of MARTA, Jeffrey Parker, pledged a \$100 Billion investment goal towards transit and

technology over the next 40 years. Nonetheless, the level of regional momentum in public transportation that has been showcased recently can also be seen in other public agencies.

Georgia Commute Options

In addition, the Atlanta region has established its own incentivized ridesharing program as a way to reduce single-occupancy vehicles from the road. The Georgia Commute Options is a state-regional partnership that is managed by the Atlanta Regional Commission (ARC) and funded through the Georgia Department of Transportation (GDOT). It aims to “help commuters make the switch from driving alone to a cleaner commute option such as carpools, vanpools, transit, walking, biking and teleworking and compressed work weeks” in order to reduce congestion, thus lowering carbon emissions (Atlanta Regional Commission, 2018). According to Malika Reed Wilkins, Executive Director of Georgia Commute Options, “with an estimated 2.5 million people moving to the Atlanta metro region by 2040, it’s paramount to Atlanta’s quality of living that we offer a variety of commute options” (Atlanta Regional Commission, 2018). Therefore, in order to encourage the use of shared mobility services, the state incentivizes riders through the various means:

- **Gimme Five:** Program participants can earn \$5 a day — up to \$150 — for trying a commute option other than driving alone.
- **\$25 Enter to Win:** Existing clean commuters are entered to win monthly \$25 prizes for logging their commutes.
- **Monthly Gas Card:** Carpoolers with three or more riders can earn monthly gas cards.
- **Vanpool \$50 Referral:** Individuals can receive \$50 for referring a new vanpool rider after that new rider has completed three consecutive months on a vanpool.

- **Guaranteed Ride Home:** Program participants can take advantage of a guaranteed ride home when unexpected events occur. Participants can receive up to five free rides, by taxi or rental car, to their home or car in case of emergency. (Atlanta Regional Commission, 2018)

State Regional Transportation Authority

Aside from Georgia Commute Options, there is a more robust regional service that has an extensive bus route network and high ridership levels. The State Regional Transportation Authority (SRTA) is a “state-level authority that addresses mobility and air quality in metro Atlanta” (GRTA, 2017). The Xpress bus service under SRTA has “27 routes in 12 metro Atlanta counties which carries more than 1.8 million passenger trips annually, providing workers with reliable, stress-free commutes to and from major employment centers in Downtown, Midtown, and Perimeter Center” (GRTA, 2017). This service has been successful since its inception in 2015 by reducing single-occupancy vehicles and providing a safe commute option to metro Atlanta residents. According to SRTA, “Xpress annually removes 55 million miles of congestion from the region’s interstates” (GRTA, 2017). As you can see from the route map below, the Xpress bus service has a wide-reaching network that looks to meet the mobility need of a sprawling region.

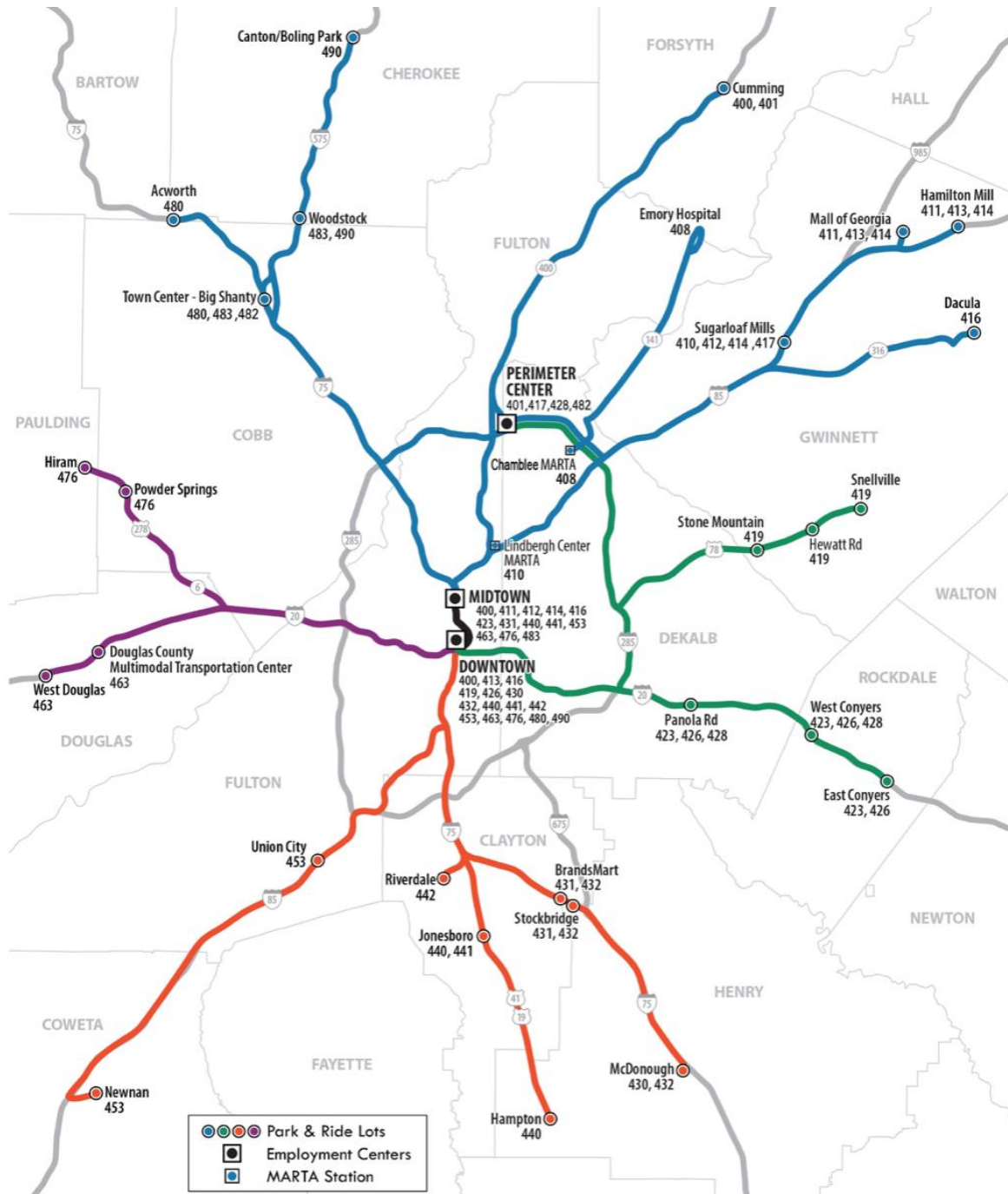


Figure 1: Map of the Xpress bus route network that extends to 12 metro Atlanta counties.
(Source: GRTA, 2017)

Gwinnett County's Microtransit Pilot

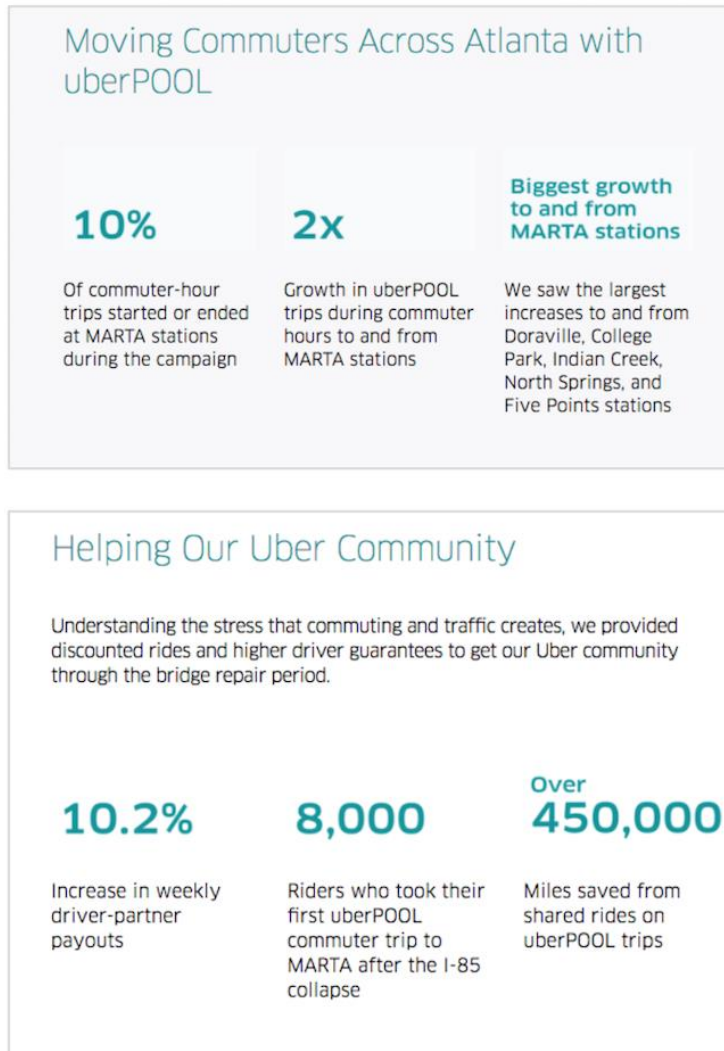
From a county-level perspective, Gwinnett County has recently embarked on a first-of-its-kind shared mobility project that has caught the attention of other municipal governments in the metro area. In September 2018, Gwinnett County launched a six-month pilot microtransit service in Snellville, Georgia in order to combat the drastic transportation inequities that reside in the sprawling city. The director of Gwinnett County's Transit Division, Karen Winger, stated "Since regular bus routes require more population density than Snellville has, we had to come up with another way to do it. Microtransit seemed to be the next best option. It's flexible and comprehensive" (Estep, 2018). The microtransit service is a free shuttle service that transports passengers around a specific zone within Snellville. It has proven to be a successful pilot program with an average of over 200 daily riders.

According to Kurt Gagnard, Gwinnett County Transportation Planner, "We have transported passengers to any number of locations and purposes including to grocery stores, school, work, doctor/dialysis visits, shopping, and back to their homes (Huppertz, 2019)". Since this microtransit service is only a pilot program, it will end soon in order to be assessed by local stakeholders. The service is scheduled to end in April 2019 where transportation planners and city officials will assess if the microtransit service worked well and should be continued. Nonetheless, this is the first time the Atlanta region has established a shared mobility service as such, which opens the door for further experimentation with alternative transportation modes.

Public-Private Partnership

Prior to Gwinnett’s innovative microtransit service, Atlanta partnered with Uber on two occasions in order to combat first mile-last mile problems in the region. In 2015, MARTA joined with Uber for the first time with the intention of reducing single-occupancy vehicles and boosting transit ridership. According to the former CEO of MARTA, Keith Parker, he explains that “with the new partnership, individuals looking for transportation can link directly to Uber's website from the MARTA app either while riding on the bus, at the train platform or at the station” (MARTA Now Partnered with Ride Share Company Uber, 2015). The benefit of the partnership was that residents were able to request and ensure their Uber rides were able to meet them at their intended bus or train stop. This partnership introduced the relationship between the regional public transit system and private shared mobility services.

Following their first partnership, MARTA and Uber launched another campaign in 2017, “Commuting Together”, to take residents to and from MARTA stations during the repair period of the I-85 Bridge upon its collapse (Uber, 2018). As the region scrambled to find a solution for commuters, the private shared mobility service stepped in to assist metro residents by offering “discounts off uberPOOL trips to and from MARTA stations and SRTA Express Park-and-Ride locations during commute hours” (Uber, 2018). Even though the campaign only ran from April 3- May 12, it had a noticeable impact on regional mobility. As visualized in the figure below, the partnership was measurably successful, especially given its short timeframe.



*Figure 2: The tables outline the impact Uber had during the Commuting Together Campaign in the Atlanta metro area.
(Source: Uber, 2018)*

Shared Mobility Inequities

Relay Bike Share

Despite the passage of House Bill 930 and the implementation of shared mobility projects around the region, access to shared mobility services has proven, on a community scale, to be

inequitable. For example, the location of Relay Bike Share ridership in Atlanta displays a drastic divide between the high income or rapidly gentrifying neighborhoods and the underserved low-income communities. The Relay Bike Share is a public-private partnership between the City of Atlanta and Cyclehop, a private bike-sharing company. In the map below, it shows the location of Relay Bike Share ridership from the latest available dataset in relation to median household income in Atlanta. In July 2018, majority of the bicycle rides in that month were in Downtown, East Atlanta, Midtown, North Atlanta, and a portion of the Westside. The lack of ridership on the Westside and Southside of Atlanta has a strong correlation to median household income values.

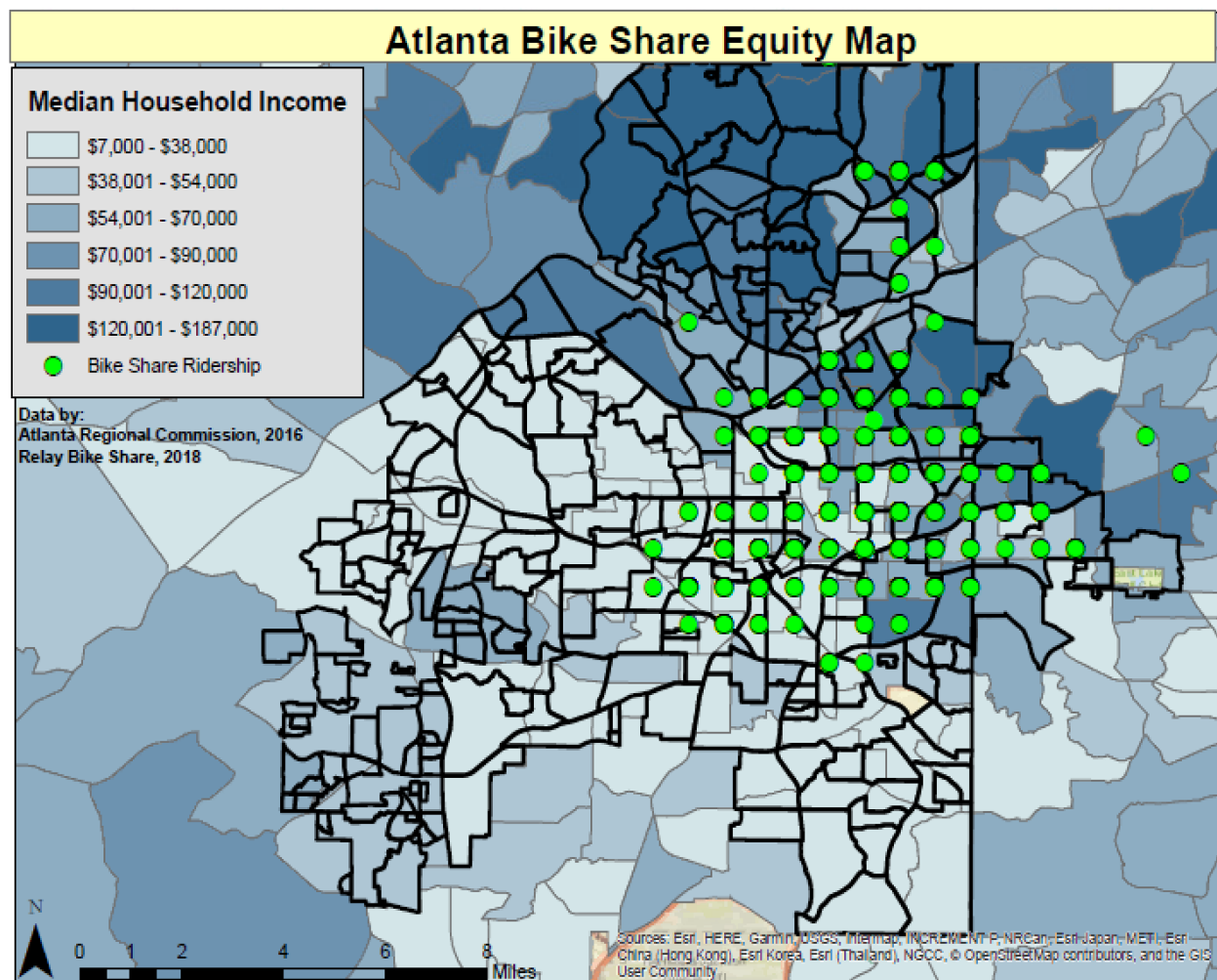


Figure 3: Map of Relay Bike ridership for July 2018 along with the median household income in Atlanta.
(Source: Relay Bike Share, 2018 & Atlanta Regional Commission, 2016)

The data tells a compelling story of how socio-economics impacts mobility options. Impoverished communities, who are not experiencing gentrification, are less likely to receive investment in shared mobility infrastructure by private companies and public agencies. According to the United States Department of Transportation (USDOT), “Some articles cite a lack of stations in low-income neighborhoods since bike-sharing stations are typically located in densely populated, higher income, mixed-use areas with good bicycle infrastructure to ensure adequate ridership and revenue to cover operating expenses” (Bell, Cohen, Shasheen, Yelchuru, 2017). Necessary infrastructural investments, such as improved sidewalks, bicycle lanes, and crosswalks, are pivotal factors to ensuring equitable installments of shared mobility services.

According to the City of Atlanta website, “the goal for Relay Bike Share is to provide first-mile/last-mile connectivity, access to fresh food and health centers, and to promote a culture of biking in the city” (City of Atlanta, 2018). Yet, the communities most in need of access to fresh food and health centers lack the infrastructure for Relay Bikes. Given that Atlanta’s local government is a co-owner and co-operator of the bike share service, it is unacceptable that they have allowed disparities in Relay ridership to exist. Even though local officials launched an effort to close the accessibility gap for low-income residents by allowing riders to use the region’s transit pass, or better known as a Breeze Card, to access the bicycles, the unequal distribution of bike share stations negates the entire effort. Since Relay Bike stations are disproportionately placed in higher-wealth or gentrifying communities, it is forcing many low-income residents to have to leave their neighborhoods to access a bicycle. Despite the vivid layers of disparity in Atlanta, there are other factors that play a role in the lack of bike share ridership in low-income communities, which I will analyze next.

Technological & Financial Barriers

In addition to examining the spatial characteristics of bike-sharing services and its inequity towards Atlanta residents, it is important to assess the technological and financial barriers that exist as well. Also, given the conclusion that higher median household income correlates with high bike-share ridership in Atlanta, a deeper dive must be taken to truly understand the constraints that reside in low-income neighborhoods. The USDOT states, “the lower rates of shared mobility use among the poor have many plausible explanations including lack of availability in low-income neighborhoods and limited Internet, smartphone, and credit/debit card access” (Bell, Cohen, Shasheen, Yelchuru, 2017). As a result, bike-sharing, scooter-sharing, and ride-hailing services are unattainable to many residents not only on the West and Southside of Atlanta, but in many suburban communities as well given the lack of technological and financial resources in many of those areas. According to an Atlanta Business Chronicle article published in 2016:

Metro Atlanta tied with Riverside-San Bernardino, Calif., for having the No. 5 most unbanked households in the country.

Here is how Atlanta fares:

- Percentage of all households that are unbanked: 9.1 percent
- Average unbanked household income: \$24,053.38 (Hudson, 2016)

Given that poverty in the region is steadily suburbanizing, financial and technological barriers are only becoming worse in the Atlanta metro area. This has profound effects on shared mobility access, thus exacerbating the inequities around the region.

State Regional Transportation Authority

Although SRTA's Xpress buses have a far-reaching impact on suburban counties, ridership levels for low-income residents are extremely low. According to Parker Martin, Senior Performance Analyst at SRTA, "Only 10% of our riders classify as low-income, meaning they make \$30,000 or less" (SRTA Xpress Bus Equity, 2019). Upon my interview with Mr. Martin, he was unsure as to why exactly low-income ridership on Xpress buses were extremely low, especially given its affordability compared to driving. So, I decided to compare Xpress fare prices to MARTA fare prices, which is displayed in the table below. The goal was to see if the price structure would be a deterring factor for low-income residents.

<i>Product</i>	<i>MARTA</i>	<i>Xpress Green Zone</i>	<i>Xpress Blue Zone</i>
One-Way	\$2.50	\$3	\$4
Round-Trip	\$5	\$5	\$7
10-Trip	\$25	\$25	\$35
Monthly	\$95	\$100	\$125

*Figure 4: The table shows the fare prices for MARTA and the Xpress commuter service.
(Source: GRTA, 2017 & MARTA, 2018)*

From the table, it is evident that the Xpress Blue Zone is more expensive than the Xpress Green Zone and even more expensive compared to MARTA. As for the Green Zone, the One-Way price and the 31-Day price are slightly higher than the MARTA fare price. According to the Xpress webpage, "Routes serving park-and-ride locations further away from Atlanta are in the Blue Zone, while those routes serving locations closer to Atlanta are in the Green Zone" (GRTA, 2017). Therefore, the Xpress price structure is based upon distance of travel, which can affect

low-income residents who live within the Blue Zone. By living in the Blue Zone, low-income residents end up paying \$30 more on a monthly pass compared to MARTA, which can be a huge cost-burden.

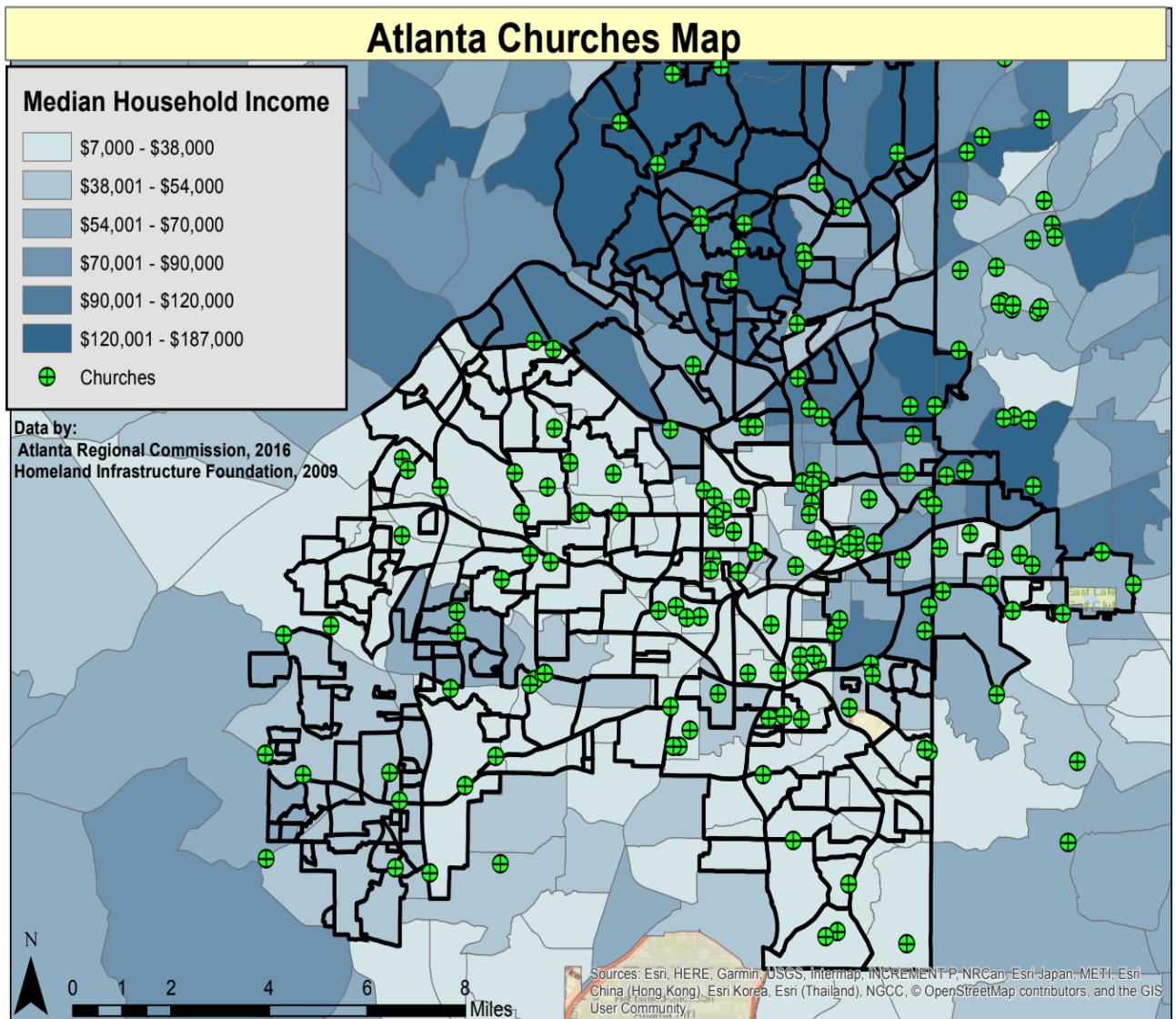
Linguistic Challenges

Lastly, as infrastructural, financial, and technological barriers have long been at the forefront of the transportation equity debate in the region, one often-overlooked constraint towards shared mobility ridership is the linguistic challenges faced by immigrant communities. The Hispanic community along the dense suburban Buford Highway corridor started their own linguistically-appealing bus service called the Royal Bus Line or the ‘Orange Bus’. This was started as a result of unreliable MARTA bus services in the area. According to a report from Kara Evitt, a Georgia Tech alumna, “Royal Bus Lines fits seamlessly into the culture on Buford Highway. Eighty percent of the total riders on Royal Bus Lines are Hispanic, and conveniently for the riders, the drivers of Royal buses are able to speak both English and Spanish” (Evitt, 2011). Therefore, with the continuous influx of Hispanics into the Atlanta region, it is pivotal that the Atlanta Regional Commission and Georgia Department of Transportation invest heavily in transportation infrastructure and shared mobility options in immigrant communities.

Why Churches?

Spatial Equity

Instead of sprawling communities waiting years for municipal and regional governments to improve shared mobility services, a solution could be right around the corner, literally. The church is a community asset that has attracted residents of all age groups and backgrounds for generations. The longevity of neighborhood churches is not just credited to religious customs, but also due to its walkability and convenience. Even though many communities are not afforded the convenience of walking to MARTA rail stations or having bike share infrastructure, many communities do live in close proximity to a place of worship. Therefore, as shared mobility infrastructure remains scarce in low-income and immigrant communities, there is one notable infrastructure that finds itself embedded in neighborhoods regardless of race, socio-economics, and language. As visualized in the map below, the spatial equity of churches in Atlanta reveals the potential that faith-based institutions can have on their surrounding community.



*Figure 5: Map of church locations and median household income in Atlanta, GA.
 (Source: Homeland Infrastructure Foundation, 2009 & Atlanta Regional Commission, 2016)*

Health Equity

The spatial equity of neighborhood churches promotes a means of active transportation. According to Partnership for Active Transportation, “Active transportation is a means of getting around that is powered by human energy, primarily walking and bicycling (Why Active Transportation, 2018). The potential health benefit of turning church parking lots into transportation hubs is the convenience of walking or biking to catch the shuttle. Church-based transportation can help communities that suffer from low physical activity and chronic health issues by encouraging daily physical movement.

The map below highlights physical activity rankings of Neighborhood Planning Units (NPU's) in Atlanta with (1) being the most physically active and (25) being the least physically active. The rankings are measures taken from the mean average of Walk Scores of each NPU's constituent neighborhoods. With a simple comparison, it is interesting to see how the Atlanta Physical Activity Map aligns with the Atlanta Bike Share Equity Map that was mentioned earlier. One can see that where there is bike share ridership and high-to-moderate median income levels, there is high physical activity. And where there is no bike share ridership, there is low physical activity. This conveys the disparities in transportation infrastructure and community development that lead to low walk scores and unsafe built environments. Therefore, by promoting church-based transportation, it will not only encourage active transportation to the churches, but push policies to ensure safe walkable and bike-able routes to get there as well.

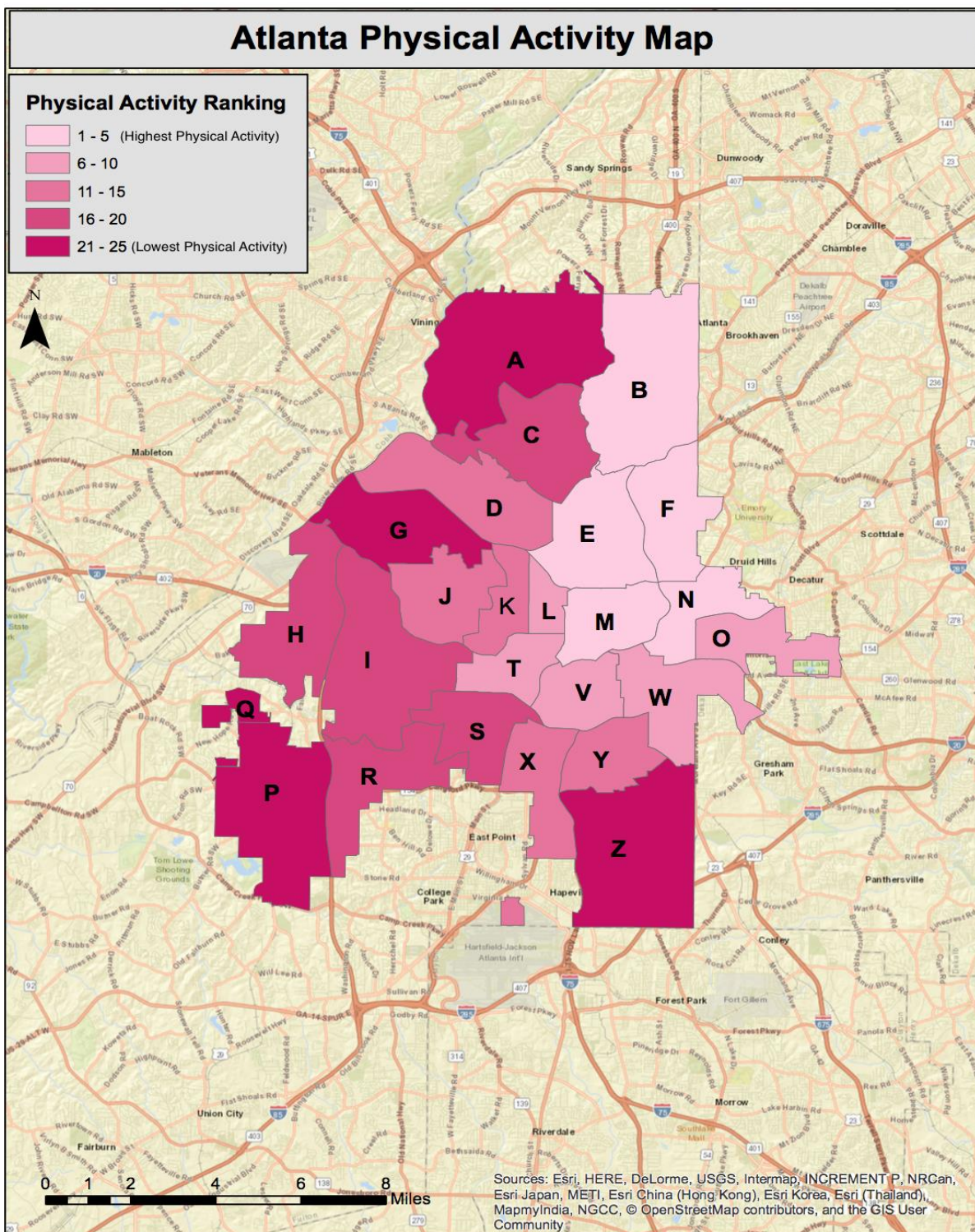


Figure 6: Map of Physical Activity Rankings among Neighborhood Planning Units (NPU) in Atlanta, GA
(Source: CSPAV, 2014)

Under-utilized Parking Lots

Despite the spatial and health benefits of churches, another factor that makes them ideal for a shared mobility service are the vast open parking spaces that remain largely vacant during the weekdays. However, given the lack of data on church parking lots and the individual operating schedules of churches, it is hard to know for sure just how often each church parking lot is vacant. But it is commonly understood that many churches are unoccupied during weekday commute hours (6am-9am; 5pm-8pm) and work hours (9am-5pm). The empty asphalt that sits idle during weekdays can be an optimal space for establishing community transportation hubs for residents. Residents who may not live in walking distance of the church, but still want to benefit from the service can utilize the open parking lot to park their cars.



Figure 7: Image of Providence Missionary Baptist Church in the Cascade Avenue/Road neighborhood in Southwest, Atlanta, GA.

(Source: Google Maps)



Figure 8: Image of Mt. Nebo Baptist Church in the Thomasville Heights neighborhood in Southeast, Atlanta, GA

(Source: Google Maps)

What is Church-Based Transportation?

Overview

Church-based transportation aims to convert church parking lots into transportation hubs in underserved communities. Given that church parking lots are often unused gray space during weekdays, the opportunity for repurposing that space for the service of nearby neighborhoods could transform shared mobility access. Specifically, church-based transportation will be a partnership between churches and MARTA to provide direct shuttle services to and from the closest MARTA station for residents during commute hours (6am-9am; 5pm-8pm). Churches

that offer shuttle services are preferred to be located in communities with two types of land use patterns: diverse housing stock and commercial activity.

By focusing on churches in communities with diverse housing stock, ranging from multifamily apartments to single-family homes, this service has the potential to reach various levels of socio-economics. Whether the residents are low-income renters or middle-class homeowners, a shared shuttle service that operates from a staple institution could allow for more social cohesion. Also, by incorporating church-based shuttles in communities with commercial activity, it promotes safety due to high visibility on the streets along with offering the opportunity for last-mile connectivity.

However, there are three primary goals that this partnership between churches and MARTA intends to achieve:

1. To get individuals out of single-occupancy vehicles as well as provide more efficient transportation services for those without cars.
2. To provide linguistic assistance to fast growing immigrant and non-English speaking communities.
3. To provide a mobility service that better adapts to the built environment of regional neighborhoods.

Nonetheless, each goal would increase MARTA rail ridership by making travel to MARTA stations more reliable and efficient. A direct shuttle service is a level of convenience that is rarely seen in the Atlanta metro region, especially in low-income and immigrant communities.

Response to Transit-Oriented Development

In order to understand the benefit of a church-based shuttle service, I will examine communities that are a certain distance from MARTA rail stations. According to the Georgia 400 Transit Initiative Analysis, it states that “Transit-oriented development (TOD) is a type of community-based development that is compact, viable, & sustainable, and within an easy walk - 1/4 to 1/2 mile - of a transit station or stop” (AECOM/Jacobs, 2012). Since walkability for transit-oriented communities is at most a 1/2 mile of a transit station, I will be looking at churches and communities that are more than a 1/2 mile from MARTA stations. Therefore, the impact of church-based transportation on communities that cannot walk to transit stations can substantially improve social equity.

Economic Development

Aside from proposing a service that looks to boost MARTA rail ridership, church-based transportation is also a way for churches to make money and boost local economic development. Churches can rent out their church shuttles to MARTA so the regional transit agency does not have to acquire new fleets. Of course, the church shuttles will have to be ADA-accessible so residents with disabilities are able to benefit from the service as well. Secondly, churches can lease out their parking lots to MARTA since many shuttle riders will park their cars on the lot. With churches leasing out their parking lots or shuttles to MARTA, they can use the revenue to invest back into the community. Also, MARTA can employ residents from the local communities around the churches to drive the shuttles in the attempt to make the service as community-oriented as possible. Lastly, the churches can partner with local small businesses to sell coffee, tea, and fruit to shuttle riders in the morning. For riders to see their neighbors driving

the shuttles or providing breakfast, it will build community morale which could increase ridership.

Active Transportation

However, church-based transportation is much more than just providing direct shuttle services to the closest MARTA rail station. It also advocates for investment in bike racks, crosswalks, and adequate sidewalks leading to the churches. Bike racks on nearby sidewalks or on church grounds promotes active transportation for residents. The goal is to have community residents walk or bike to churches to benefit from the shuttle service, thus requiring infrastructure to safely lock and stow away bicycles. Church-based transportation is a well-rounded approach towards ensuring equitable uses and convenience of mobility options for all residents.

Fare Compatibility with MARTA

In order for church-based transportation to be truly successful, the shuttle fares will have to be compatible and easily transferrable with MARTA's fare system. Riders must be able to use their Breeze Cards to gain access onto the shuttle so they can easily transfer to MARTA rail. Therefore, upon MARTA's partnership with churches, the fare-collection technology must be installed in the church-based shuttles. Also, the shuttle fare must be included in the one-way \$2.50 MARTA ticket in which riders are able to get up to 4 free transfers within a 3-hour period if riders use their Breeze Card. This way, riders can scan their Breeze Card on the church shuttle and transfer to MARTA rail without having to pay again. It is imperative that the cost and framework of riding a church-based shuttle is embedded within the pre-established MARTA structure and not adding additional cost to residents.

Case Study Analysis

Location 1: Methodology

Site Selection Overview

The first proposed church-based transportation location is Providence Missionary Baptist Church in the Cascade Avenue/Road neighborhood of Atlanta, Georgia. Cascade Avenue/Road is a low-to-middle income community that is nestled in between the affluent neighborhood of Cascade Heights and the rapidly gentrifying community of Westview. Providence Missionary Baptist sits at the intersection of a vibrant commercial corridor that hosts a range of businesses from restaurants and barbershops to tax prep services and dry cleaners. Since the shuttle service at Providence Missionary Baptist will encourage local residents to walk, bike, or drive to the church, it is imperative that safety is promoted through high visibility on the street, which the Cascade commercial corridor provides. Aside from the built environment and safety, the diverse housing stock and socio-economic base of the community justifies a level of density that can use the shuttles. I will further elaborate on the housing stock and economic base of the community later in the analysis.

Cascade Avenue/Road's Current Commute Modes

In order to understand the potential benefit church-based transportation can have on the Cascade Avenue neighborhood, it is imperative to analyze the current commute options of residents who live near Providence Missionary Baptist Church. The table below shows the commute options for workers that live within a ½ mile buffer of Providence Missionary Baptist, which indicates that nearly 80% of people are driving alone to work. With only 6.8% of workers

carpooling and 11% riding transit to work, it is crucial to find a solution that gets residents out of single-occupancy vehicles and into shared mobility services. Also, according to the Shared-Use Mobility Center, about “18% of residents who live within a ½ mile from Providence Missionary Baptist do not own a car” (SMUC Tools, 2019). By looking at local commuter and car-ownership data, it paints a picture of how impactful church-based shuttles can be in the neighborhood.

Cascade Avenue/Road Commute Mode		
Workers:	600	
Driving Alone:	477	79.5%
Carpooling:	41	6.8%
Public Transit:	66	11%
Biking:	0	0%
Work From Home:	16	2.7%

Figure 9: The table identifies the different commute options that local residents of Cascade Avenue/Road use.

(Source: SMUC Tools, 2019)

Land Use Pattern

Aside from understanding the commute options of residents around Providence Missionary Baptist, the land use patterns of single-family, multi-family, and commercial are critically important to the implementation of church-based transportation. Given that shuttle

services from church parking-lots will not work for all churches in the region due the lack of density in some areas, Providence Missionary Baptist sits within an optimal zoning pattern that offers strong levels of density. The zoning map below shows Providence outlined in blue and the zoning patterns highlighted in red. To the *West* of Providence, the zoning codes are

- R-2A (Single-Family Residential, minimum lot size 0.69 acres),
- R-3 (Single-Family Residential, minimum lot size 0.41 acres),
- RG-2 (General (Multi-Family) Residential, maximum floor area ratio of 0.348).

To the *North* of Providence, the zoning code is

- R-4 (Single-Family Residential, minimum lot size 0.21 acres),

To the *South* of Providence, the zoning code is

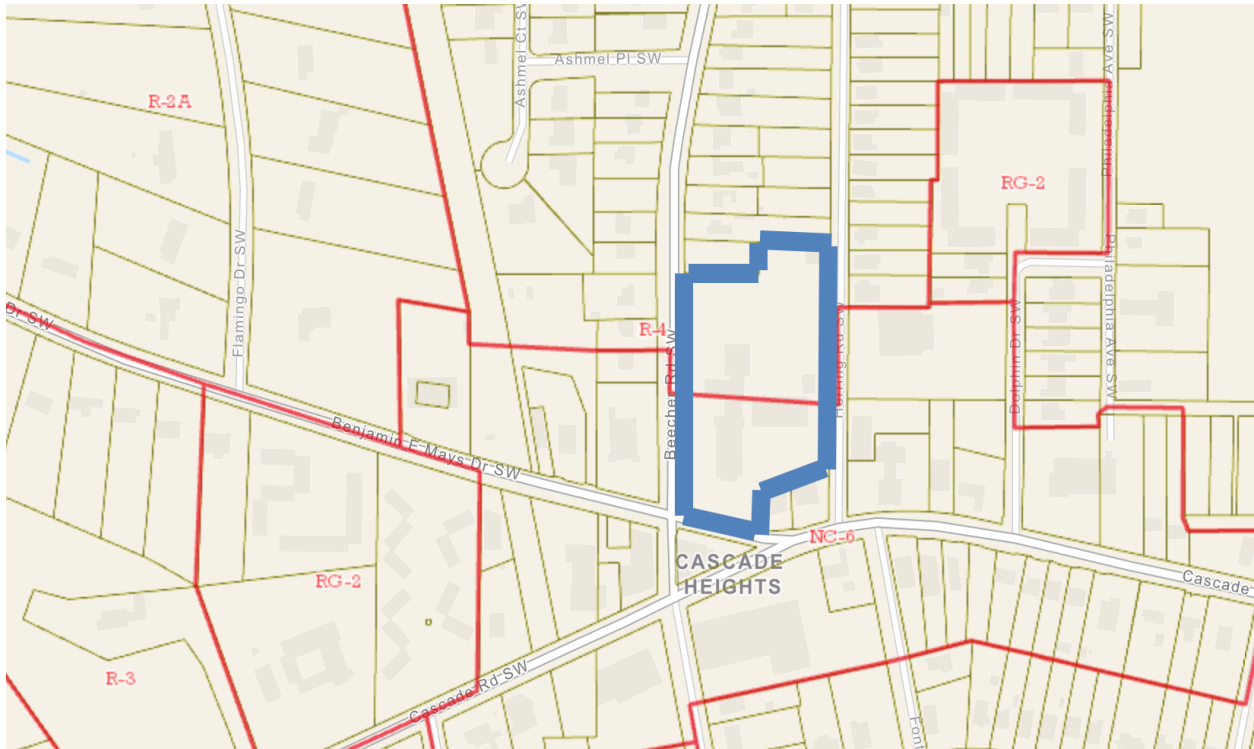
- NC-6 (Neighborhood Commercial).

Lastly, to the *East* of Providence, the zoning code is

- RG-2 (General (Multi-Family) Residential, maximum floor area ratio of 0.348).

(City of Atlanta, 2019)

This mixture in land-use patterns shows an attractive level of density around Providence that will compliment church-based transportation. With low-income renters and moderate-income homeowners, a shuttle service has the opportunity to bring neighbors of different socio-economic bases together. Therefore, upon assessing the current commute options and spatial patterns around the church, it is evident that an affordable and convenient mobility service has the potential to change travel behavior in the surrounding communities.



*Figure 10: Zoning map of the Cascade Avenue/Road neighborhood around Providence Missionary Baptist Church
(Source: GIS, Atlanta Department of Planning, 2018)*

Under-utilized Parking Lot

Providence Missionary Baptist Church has a vast parking lot that can be seen on the image below. The image was taken on a Friday and shows some utilization of the parking lot, but clearly displays how majority of it is barren. The opportunity for shuttle services and bicycle infrastructure is a worthy proposal given the underutilization of Providence's large parking area. By transforming the parking lot into a transportation hub for local residents, access to employment clusters and medical centers can be much more convenient and efficient.



*Figure 11: Image of Providence Missionary Baptist Church's under-utilized parking lot.
(Source: Google Maps)*


Church-based Transportation Benefit

Church-based transportation will impact the communities around Providence Missionary Baptist Church by offering a more time-efficient service compared to MARTA buses as well as a more cost-friendly option compared to driving. A shuttle service that takes community residents directly to and from their closest MARTA Station during commute hours (6am-9am; 5pm-8pm) can boost transit ridership and decrease single-occupant driving. In order to shift the travel

behavior of commuters, I will explain how church-based shuttle services can get right what MARTA buses are getting wrong.

Time Inefficiency

The current MARTA bus routes that run near Providence Missionary Baptist are Bus 71 and Bus 68. Bus 71 takes riders to the West End MARTA Station while Bus 68 takes riders to the Ashby MARTA Station. For riders on Bus 71, it takes them on average 16 minutes to get from the bus stop on Cascade Road and Beecher Road (which is a block away from Providence Missionary Baptist) to the West End MARTA Station. This can be seen on the timetable sheets below, which show the inbound and outbound schedules. However, the 16 minutes does not account for the time a passenger will have to wait for the bus to arrive. The average wait time is 10-11 minutes in between buses and if you do not have a smartphone, then you cannot access the MARTA smartphone application to track the location of the next bus. Therefore, it could take MARTA bus riders up to 27 minutes to get from near Providence Missionary Baptist to the West End MARTA Station. Yet, this does not include any possible occurrences that could happen at the 22 stops that are in between Cascade Road/Beecher Road and the West End MARTA Station, which could extend or reduce the time.



	06:00	06:07		
A	06:03	06:19	A	17:00
A	06:13	06:29	A	17:10
A	06:23	06:39	A	17:20
A	06:33	06:49	A	17:30
A	06:43	06:59	A	17:40
A	06:53	07:09	A	17:50
A	07:03	07:19	A	18:00
A	07:13	07:29	A	18:10
A	07:23	07:39	A	18:20
A	07:33	07:49	A	18:30
A	07:43	07:59	A	18:40
A	07:53	08:09	A	18:50
A	08:03	08:19	A	19:00
A	08:13	08:29	A	19:15
A	08:23	08:39	A	19:30
A	08:33	08:49	A	19:45
A	08:45	08:59	A	20:00
			A	20:15

*Figure 12: Timetable for MARTA Bus 71 from Cascade Road & Beecher Road to the West End MARTA Station.
(Source: Remix, 2019)*

Response to Time Inefficiency

The shuttle service at Providence Missionary Baptist will go directly to the Oakland City MARTA Station, which takes 8 minutes according to Google Maps. Since MARTA Bus 71 takes residents to the West End MARTA, which is 3.7 miles away from the bus stop on Cascade Road and Beecher Road, the church-based shuttle will take riders to the Oakland City MARTA Station, which is only 2.6 miles away. A one mile difference will surely reduce time. Therefore, instead of riding a bus that has 22 stops, commuters can ride a shuttle that goes directly to the rail

station without any stops, thus reducing the commute time substantially. With a shorter travel distance and time, shuttles can circulate their routes more frequently, thus making pick-ups and drop-offs more efficient.

Lack of Bus Shelters

Another burden that MARTA bus riders have to face in the Cascade Avenue/Road area is the lack of bus shelters. According to CBS News 46, a MARTA bus passenger Marcus Jackson stated, “We need more shelters out here for weather like this, you know what I mean, to keep people out the rain and snow, things like that” (Mason, 2018). Bus shelters, at the bare minimum, are used as protection from precipitation or the sun as well as for seating. This critical absence of infrastructure puts elderly residents and young children at-risk of heat-related health issues. The lack of investment in bus shelters from the local government or MARTA presents a public health issue that leaves vulnerable residents susceptible to preventable health complications. Also, exposure to certain weather conditions can deter many from riding the bus and force them to drive their cars.

Response to Lack of Bus Shelters

As MARTA partners with churches to implement a shuttle service, an outdoor shelter must be required in the agreement in order for residents to avoid exposure to excess heat or precipitation. As a result, Providence Missionary must provide coverage that can be as simple as a foldable canopy tent. Also, the ability to park your car in the church parking lot allows for riders to sit in their cars until the shuttle arrives. Therefore, outdoor coverage along with the

ability to wait in your car will make the shuttle service from Providence Missionary much more attractive.

Economic Development

Transit-oriented development near MARTA rail stations has allowed certain communities in the Atlanta area to benefit from a substantial amount of economic investment. But what about communities that do not reside near a MARTA rail station? How can those communities experience economic development, at a minimal level, from their transportation options? As a result, a transportation hub at Providence Missionary Baptist can help spark economic development in various ways.

First, MARTA can hire local residents to drive the shuttles as well as provide security for the church parking lot throughout the day. Also, the Cascade Avenue/Road neighborhood is home to The Beautiful Restaurant, a well-known black-owned restaurant that was founded in 1979. This notable establishment serves traditionally-cooked southern meals. A partnership between Providence Missionary and The Beautiful Restaurant can be created to boost the local economy. Employees from ‘The Beautiful’ can serve coffee, juice, or small breakfast platters to residents as they wait for the shuttle. This community-oriented endeavor brings together two staples in the neighborhood, Providence Missionary and The Beautiful Restaurant, which can attract local residents to utilize the shuttle.

Location 2: Methodology

Site Selection Overview

The next church where shuttle services can benefit the local community is Clairmont Baptist Church in Brookhaven, Georgia. Clairmont Baptist is located on Clairmont Road and directly across the street from Plaza Fiesta, a thriving Hispanic commercial hub that attracts many small businesses and department stores. The method in choosing this church location follows the standard criteria: commercial activity, diverse housing stock, and an under-utilized parking lot. However, the differentiating factor with this church-based proposal is accommodating the linguistic need of the surrounding community. As explored earlier in the paper, the Hispanic community in the region has historically felt underserved by MARTA and limited in transportation investment. This led to the creation of the Orange Buses, which strictly serves predominantly Hispanic communities along Buford Highway. Therefore, it is important to see how church-based transportation can help bridge the longstanding gap between MARTA and regional Hispanic residents.

City of Brookhaven

Brookhaven is a suburb northeast of Atlanta that has a quickly growing Hispanic population due to the adjacent commercial corridor along Buford Highway as well as its proximity to Atlanta. As visualized in the table below, Brookhaven has a substantially large population of Spanish-speaking residents which accounts for almost $\frac{1}{4}$ of the city's population. This high percentage of non-English-speaking residents in the city must raise the question on how the local government is meeting their linguistic needs so they can best utilize the regional

transit system. Given that Brookhaven has its own MARTA station that is located about 2 miles from Clairmont Baptist Church and Plaza Fiesta, a bilingual shuttle service could have profound impacts for the growing immigrant population in that area.

Brookhaven Demographics Profile

Statistic	Brookhaven	Georgia
Population	51,567	10,099,320
Population density (sq mi)	4,452	167
Median age	33.4	36.2
Male/Female ratio	1.0:1	1.0:1
Married (15yrs & older)	48%	54%
Families w/ Kids under 18	48%	45%
Speak English	68%	86%
Speak Spanish	23%	8%

Figure 13: Table showing Brookhaven's demographics compared to the state of Georgia's demographics.

(Source: Area Vibes, 2019)

Brookhaven's Current Commute Modes

Within a ½ mile buffer of Clairmont Baptist Church, there are over 2,000 workers that commute around the region. According to the table below from the Shared Use Mobility Center, 62% of them drive alone, 13% carpool, and 15% ride public transit (SUMC Tools, 2019). Even though the Shared Use Mobility Center does not go into detail about why the statistics for commute modes are so drastic, it can be assumed that it is due to region's sporadic employment centers and their lack of proximity to MARTA rail stations. The Managing Mobility in the Atlanta Region report conducted by the Atlanta Regional Commission states, "Atlanta region's

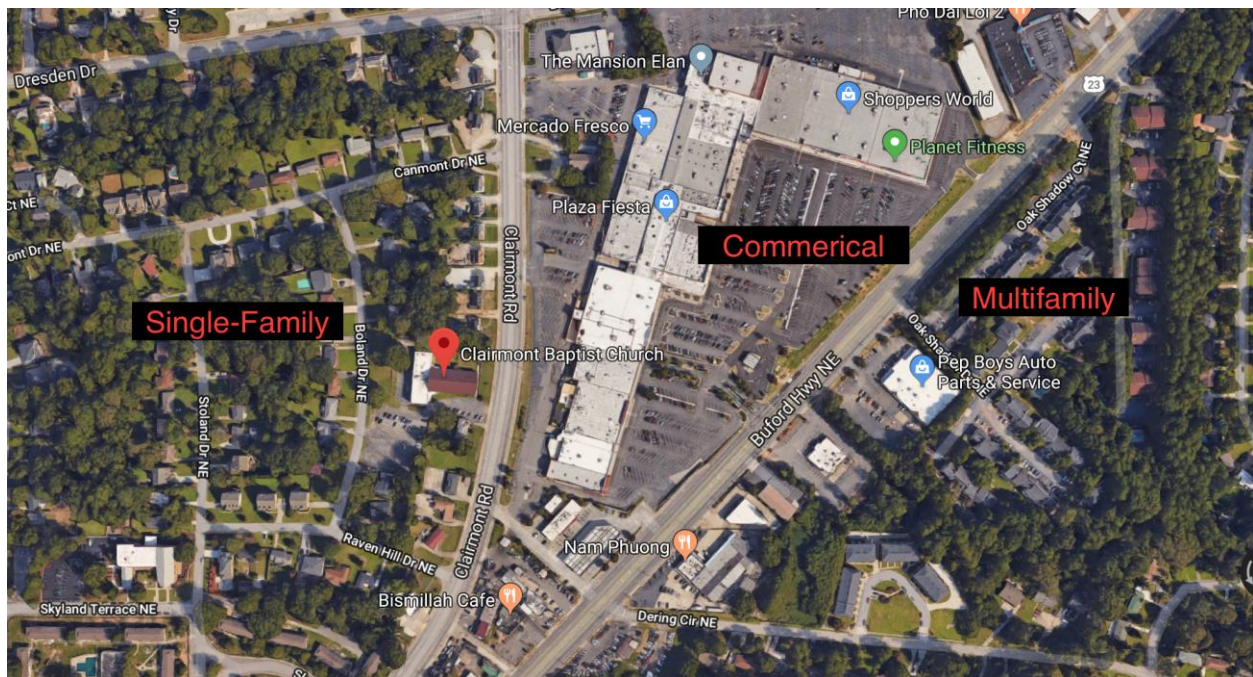
transit system accesses only 47.9% of jobs, 29% of households, and 25.8% of workers in the region” (Atlanta Regional Commission, 2016). Given that only 47.9% of the region’s jobs are available by MARTA, that means more than half of the region’s workers have to rely primarily on driving their cars to work. This can be seen from a micro-level perspective in Brookhaven as majority of workers drive alone, thus contributing to air pollution and higher levels of road fatalities.

Brookhaven Commute Mode		
Workers:	2,026	
Driving Alone:	1,268	62.6%
Carpooling:	269	13.3%
Public Transit:	322	15.9%
Biking:	0	0.0%
Walking:	29	1.4%
Work From Home:	128	6.3%

*Figure 14: The table identifies the different commute options that local residents of Brookhaven use.
(Source: SMUC Tools, 2018)*

Land Use Patterns

The spatial breakdown of the communities around Clairmont Baptist Church reveals a suitable amount of density and attractiveness. With the church sitting in between commercial and residential areas, it has the opportunity to be an ideal transportation hub for local residents, shoppers, and store employees from Plaza Fiesta. By referencing the image below, Clairmont Baptist has single-family residences to the West while having commercial and multi-family homes to its East. Given that the median income for the ½ mile buffer around Clairmont Baptist Church is \$54, 515, it shows that this is a mixed-income area with great potential for social cohesion (SMUC Tools, 2019). Lastly, with the Brookhaven MARTA Station and the Chamblee MARTA Station being only 2 miles away, this gives the shuttle services an option on which station works best during commute hours.



*Figure 15: The image shows the land use pattern around Clairmont Baptist Church.
(Source: Google Maps)*

High-Speed Road Issue

Even though the community around Clairmont Baptist offers an ideal land-use pattern for church-based shuttle services, the nearby high-speed roads are extremely dangerous for residents. Clairmont Road is a 4-lane road while Buford Highway is a 6-lane road and both offer little pedestrian-friendly infrastructure. This poses an issue that must be addressed through investments in signalized crosswalks and improved road buffers along sidewalks. This concern is a microcosm of the difficulty church-based transportation can face in suburban counties that offer little walkable and bike-able infrastructure. This should not discourage church-based shuttles, but push churches and MARTA to strategize how to best adapt to the existing built environment.

Under-utilized Parking Lot

Clairmont Baptist is nicely-situated within a single-family residential community and offers much potential for active transportation for that particular neighborhood. The empty church parking lot, which is displayed below, shows high capacity for drivers who wish to park and ride the shuttles. Also, it shows where potential bike racks and sidewalks could be installed in order to improve walkability and bike-ability to the church.



*Figure 16: Image of Clairmont Baptist Church's under-utilized parking lot.
(Source: Google Maps)*

Church-based Transportation Benefit

Currently, MARTA provides multi-lingual literature, audio, and signage in its bus and rail fleets. The transit agency also actively recruits multi-lingual customer service representatives to better accommodate non-English speaking residents. Despite the inclusive efforts MARTA has done so far, there are still other areas where linguistic challenges are unmet. As a result, church-based transportation in Brookhaven, GA seeks to tackle the unmet linguistic challenges in order to better serve the growing Hispanic population in the area. With churches being the linguistic

embodiment of its surrounding communities, they hold much potential for closing the language gap in the Atlanta region.

Lack of Marketing Towards Immigrant Communities

The linguistic challenges that reside in current shared mobility services, such as the public transit agency and private mobility companies, are revealed through subtle practices. According to the USDOT, “Shared mobility services have increased awareness and interest in multi-modal travel, but many have faced challenges in addressing barriers and marketing to low-income communities, minorities, and users with limited English proficiency” (Bell, Cohen, Shasheen, Yelchuru, 2017). The lack of marketing towards Spanish-speaking residents can be seen if you look at MARTA bus stop signage or advertisement along its fleets. The bus stop signage is void of informative direction for non-English speakers. As you can see with the images below, there are no signage translation nor bilingual advertisement that cater to non-English speaking residents. Lastly, commercials for Uber or Lyft do not cater to the non-English speaking residents, but rather young English-speaking professionals.



Figure 17: Image of a common MARTA bus stop with no multi-lingual information for non-English-speaking residents.

(Source: Carpenter, 2017)



Figure 18: Image of a MARTA bus that is advertising an English-language company with no multi-lingual translation.

(Source: MARTA: Buses at Arthur Langford Place in South Atlanta, 2017)

Inclusive Marketing & Outreach Strategy

In order to market the shuttle services at Clairmont Baptist Church, MARTA and the church leaders will have to work closely to develop a promotional strategy. The first step includes working with other nearby churches around Plaza Fiesta with significant Hispanic members to market the shuttle service. Next, MARTA representatives and Clairmont Baptist leaders can set up a booth inside Plaza Fiesta to inform shoppers and store employees about the church-based shuttle service. By talking to shoppers and store employees, it allows the opportunity to question if this shuttle service could provide a last-mile solution to them. The shuttle service could also offer last-mile benefits to regional residents who may live elsewhere in the region, but work at or patronize Plaza Fiesta. Therefore, by setting up a booth in the mall, it would allow for strategic engagement and a better assessment of how the service could be used. These are steps to not only promote the church-based shuttle service, but gather feedback on how to best serve the surrounding community.

Low Recruitment Efforts for Bilingual Bus Drivers

Next, the recruitment of MARTA bus drivers shows a gap in linguistic preferences. MARTA's criteria for bus driver recruitment, which is listed below, makes no reference towards a bilingual hiring need. Even though a bilingual bus driver should not be required for the job, it should be strongly preferred with pay incentives to attract Spanish-speaking candidates. For example, the Atlanta Police Department offers higher pay for bilingual officers in order to incentivize the recruitment of law enforcement who can best serve the growing immigrant population. According to Officer Antonio Gonzalez, former representative for the Atlanta Police Department's Hispanic Liaison Unit, "Officers from diverse backgrounds bring an important

perspective and cultural sensitivity that furthers APD’s goal to serve and protect citizens across the wide spectrum of Atlanta’s diverse population” (Rogers, 2013). This same inclusive approach must be implemented in Atlanta’s regional transit authority. The value of a bilingual bus driver is overlooked and needs to be addressed in order to provide non-English-speaking riders with the comfort of receiving immediate information. Therefore, church-based transportation at Clairmont Baptist aims to tackle the bilingual recruitment issue in order to ensure a more inclusive service.

EDUCATION/EXPERIENCE REQUIREMENTS:

- High School Diploma or equivalent
- Valid CDL Permit or license with Passenger Endorsement.
- Required to have an acceptable driving record (must not have any more than (1) moving violation or (3) points within the last 24 months)
- Must be at least twenty-one (21) years old.
- Required to pass all applicable tests relating to this position including: physical examination with a drug/alcohol screen, physical ability test and video assessment.
- **EXCELLENT CUSTOMER SERVICE SKILLS ARE A MUST!**

Figure 19: Table shows education/experience requirements for MARTA bus drivers, with no reference to bilingual preferences.

(Source: MARTA, 2019)

Hiring Bilingual Shuttle Drivers

Shuttle services from Clairmont Baptist Church will meet the linguistic need of local residents by hiring local bilingual residents to drive the shuttle. This is a crucial step towards making riders feel comfortable with a shared mobility service. Bus drivers are much more than just navigators along pre-determined routes, but an informative resource for riders. Shuttle drivers should be able to speak the language of its riders in order to adequately answer any

questions. Given that churches will partner with MARTA, the bilingual literature that MARTA produces can be available in the shuttles so passengers can review in route to the rail station. With a bilingual bus driver and bilingual literature, non-English-speaking residents can feel more comfortable using public transportation.

Limitations

The proposal to turn church parking lots into transportation hubs for communities is a novel concept that holds much potential for underserved communities. Yet, with a bold recommendation comes stark limitations that must be addressed in order to make this effort a reality. Limitations in infrastructure, shuttle access, and last-mile connectivity are key issues that can determine the success of church-based transportation. Before any contractual agreement between churches and MARTA are made, these constraints must be met with strategic investments and collaborative efforts.

Lack of Transportation Infrastructure

Transportation infrastructure in the form of crosswalks, sidewalks, bike lanes, and speed abating road design will contribute to the success of church-based transportation. If local residents cannot get to the churches safely and efficiently, then this shared mobility proposal will never achieve much consideration. For example, by proposing a church-based shuttle service at Clairmont Baptist Church, its viability is contingent on providing safe walkable and bike-able infrastructure. Clairmont Road is a 4-lane stretch that offers little to none speed abatement designs for pedestrian crossing or bicycling. These infrastructural limitations must be at the

forefront of local planning efforts if church-based transportation were to expand to other churches not just in Brookhaven, but around the region.

Access to Shuttle Fleets

Next, access to shuttle fleets is a concern that will have to be examined by churches and MARTA. Some churches have shuttles, but given the lack of data on churches and their vans/shuttles, it is hard to strongly suggest how many churches have access to them. Also, MARTA has shuttles that they currently use for their MARTA Mobility service, yet it is unclear how many could be used as church-based shuttles. More research and analysis will need to be conducted to understand which churches in the Atlanta region have access to vans/shuttles along with MARTA's inventory of shuttles.

Last-Mile Connectivity

Since church-based transportation aims to get residents to and from MARTA rail stations during the weekday, job centers or employers will have to provide last-mile services for workers in order to ensure a reliable and well-rounded service. There are currently shuttle services in the region that already provide last-mile connectivity, such as Perimeter Connects and The Buc. Yet, more employers must join this effort of shared mobility services in order to get commuters out of single-occupancy vehicles. Church-based shuttle services and employer-sponsored shuttle services can work in tandem to redefine how Atlanta metro solves first-mile/ last-mile connectivity.

Conclusion

Church-based transportation is an attempt to redefine how residents, transportation planners, and local governments view space in regional communities. The church is a well-established institution that finds itself embedded into many neighborhoods around the Atlanta metro area. Their stake in communities is measured not just through their delivery of the gospel or through the convening of neighborhood meetings, but through their ownership of land that has the potential to be reimaged. By turning church parking lots into transportation hubs, it offers the opportunity for job creation, improved shared mobility, and the assurance of social equity. The abundance of unused gray space can be repurposed with bike racks and adequate sidewalks to promote active transportation for riders of church-based shuttles. The health benefits for communities can be substantial if walkable and bike-able infrastructure is established.

Even though only two communities were selected for analysis in this shared mobility proposal, there are many other neighborhoods around the Atlanta metro region that could benefit from church-based transportation. Communities such as Ben Hill and Thomasville Heights in Atlanta; Austell in Cobb County; And Clarkston in DeKalb County can use church-based transportation to provide residents with better access to jobs and health centers. A direct shuttle service embedded within communities can linguistically and efficiently serve local residents that have long been deprived of shared mobility options. Therefore, as the Atlanta metro area redefines its regional public transit system with the establishment of the Atlanta-region Transit Link (ATL), I firmly believe church-based transportation is an ideal fit and a timely proposal that transportation planners must consider.

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